

**QUEEN CREEK AT CAP
FCD GAGE# 38007**

STATION DESCRIPTION

LOCATION – The gage site is located on Queen Creek at upstream side of the Sonokai Dike in Pinal County. Gage is accessed by travelling from US 60 south on Ironwood Road (Vineyard Road) to Ocotillo Road. Turn east to Schenpf Road and go south to Sky Line Road, turning east until the dam is reached. Turn left onto the dam and travel an additional 3 miles to the gage. Latitude N 33° 13' 55.7", Longitude W 111° 30' 11.1". Located in NE1/4 NE1/4 Section 26, T2S, R8E of the Magma 7.5 minute USGS quadrangle.

ESTABLISHMENT – The gage was installed on January 14, 1999.

DRAINAGE AREA – 200.4 square miles, via USGS Streamstats.

GAGE – The gage is a pressure transducer type instrument. The PT is at gage height 0.20 feet, levels of July 13, 2021.

There is no staff gage at this location.

There is one crest-stage gage at this location, and is near the transducer gage. It has a pin elevation of 0.32 feet gage height, levels of July 13, 2021.

ZERO GAGE HEIGHT – Zero is the low spot at the upstream side of the culverts passing under the dike. It is equivalent to 1,569.003 feet NAVD88.

HISTORY – Gage installed on January 14, 1999. PT gage reconfigured on May 24, 2004.

REFERENCE MARKS –

BM-6723 is an FCDMC brass cap located on top of the dike near the station tube. It is at elevation 17.537 feet gage height and 1,586.540 feet NAVD88, levels of July 13, 2021.

RM-QCCAP is a CAP brass cap located on the downstream slope of the dike, just to the left of the culvert. Elevation 6.359 feet gage height and 1,575.362 feet NAVD88, levels of July 13, 2021.

RM-1 is a chiseled 'X' on the upstream headwall. It is at elevation 8.185 feet gage height and 1,577.188 feet NAVD88, levels of July 13, 2021.

RM-2 is a chiseled 'X' on the downstream headwall. It is at elevation 7.863 feet gage height and 1,576.866 feet NAVD88, levels of July 13, 2021.

RP-1 is a chiseled 'X' at the ground at the transducer gage. It is at elevation 0.000 feet gage height, levels of December 20, 2018. Due to standing water and sediment during the July 13, 2021 survey, the point was not found and surveyed at that time.

RP-2 is a bolt on the right of the transducer gage. It is at elevation 0.893 feet gage height, levels of July 13, 2021.

CHANNEL AND CONTROL – Queen Creek is passing under the Sonokai Dike at this gage location. The control is the four culverts passing under the dike. The culverts include 4, 72-inch circular concrete pipes. Culvert length is 80 feet. Top of dike at culverts is 17.8 feet.

RATING – The current rating is Rating #2 and was developed from a model of survey data. A model for the partially blocked culverts was done for this rating, and modelling the outlet as a side structure as the flow is not specifically directed to the outlet culverts as in typical roadway crossings.

DISCHARGE MEASUREMENTS – Discharge measurements can be made at shallow depths on the downstream side of the structure in the channelized area upstream of the culvert crossings over the CAP canal.

POINT OF ZERO FLOW: The PZF is in the right-most culvert at elevation 0.00 feet gage height, levels of October 21, 1999.

FLOODS – The peak event of 1,043 cfs and 10.15 feet gage height occurred on February 12, 2005. A runoff event occurred January 21, 2010 of 926 cfs and 8.77 feet gage height.

REGULATION – Whitlow Ranch Dam upstream regulates flows at its principal outlet. The dike regulates Queen Creek just before it passes over the CAP canal. The design discharge for Queen Creek into the structure is 17,000 cfs. The four culvert capacity is 2,000 cfs per the most recent modelling, and assuming water was near the top of the dike, which is highly unlikely.

DIVERSIONS – A small diversion of water occurs to Queen Valley at the outlet works for Whitlow Ranch Dam.

ACCURACY – Fair

JUSTIFICATION – Monitor flows in Queen Creek for potential dam breach and flood warning downstream.

UPDATE – July 14, 2021
DE Gardner